

The Completeness of Physiotherapy Patient Registers in Kigali, Rwanda

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Abstract

Background: The patient register is a specialized medical record that facilitates professional requirements, including continuity of service, quality of care, administrative data management including patient billing and resource allocation, medico-legal requirements, policy decisions, research and education. A Rehabilitation Desk was established in the Ministry of Health in Rwanda, but this position has remained vacant for a number of years. There is therefore no central aggregation of the scope or volume of work done by physiotherapists in Rwanda. **Purpose:** This paper describes the status of physiotherapy patient registers, which were used in a larger study that aimed to determine the character and nature of patients presenting for physiotherapy at hospitals that are routinely used for the clinical teaching of physiotherapy students. **Methods:** A retrospective review of all physiotherapy registers from five purposively selected hospitals in and around Kigali was employed. All register entries from the year 2009 were reviewed and transcribed using a pre-coded, researcher-designed and piloted checklist. Data were entered and analyzed using Microsoft Excel 2007. Descriptive statistics were used to characterize register data. **Results:** A total of 145128 patients were registered in the five hospitals during 2009, and of these 3476 were registered in the physiotherapy department. All hospitals used traditional paper-based registers. Missing entries were observed on 1902 (55%) entries, most often for the 'residential address' (17%) and 'gender' (14.2%) variables. Furthermore, there were peculiar challenges observed pertaining to register entries of the 'patient diagnosis'. **Conclusion:** The study found a high frequency of missing register entries. Our findings limit the usefulness of physiotherapy patient registers to fulfill the obligatory professional requirements and to inform planning for services.

Introduction

Physiotherapy

Physiotherapy is a healthcare profession that aims to enhance the functional ability of individuals in order to maximize their quality of life in both the physical and psychological domains. [1] It is therefore an essential component in the national healthcare system and includes preventive, curative, promotive and rehabilitative services. Secondary and tertiary prevention involve mitigating complications that arise from anatomical, physiological and psychological impairments of structure and function. The scope of physiotherapy does include primary prevention including but not limited to interventions in the workplace, in school settings and instructions for the elderly as well as in sport and leisure. More recently physiotherapy is recognized for its growing role in prevention and management of non-communicable diseases intended to contribute more significantly to decreasing the burden of diseases attributable to global health concerns. [2]

Physiotherapy in Rwanda

In Africa, the role of physiotherapy in managing disability resulting from trauma, particularly in post-conflict situations has been important in raising the awareness of physiotherapy among other health personnel and lay communities. [3] This appears to have been the case in Rwanda. [4] A little more than a decade ago physiotherapy was relatively unknown in Rwanda. The government of Rwanda through the Ministry of Health and Ministry of Education started a higher learning institution namely Kigali Health Institute (KHI) for the training of health professionals. Physiotherapy was the first programme offered and commenced in June 1996 [5] initially as a 3-year diploma course and from 2006 as a 4-year honours Bachelors degree programme. During this time the government of Rwanda under its 'human resources for health' development programme facilitated and offered scholarships for various health professionals including physiotherapists

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to undertake postgraduate studies outside Rwanda to solve the problem of deficits in the number and quality of health personnel in the country. [6] According to the Africa Health Workforce Observatory, [7] the number of physiotherapists in Rwanda in 2009 (including those with a diploma, bachelors, masters or doctoral degree) was 90, while anecdotal sources put the number of physiotherapists in the country in 2011 at 177.

The Association of Rwandan Physiotherapists (AKR) collaborates with the Ministry of Health in deploying physiotherapists to different hospitals where they are needed. In the institutions where they work in Rwanda, physiotherapists largely provide care that is classified as secondary prevention. [8] They are expected to achieve this through assessment and examination of patients, ascertaining diagnoses, administration of individualized and group interventions using current physiotherapy techniques, modalities and protocols. Physiotherapists are also expected to fulfill all the medico-legal and ethical requirements of health care including, comprehensive documentation and communication following strict ethical standards. [9] In addition, physiotherapists are expected to maintain a high standard of professionalism and good conduct in accordance with the profession's service regulations [9] and policy, which in this case are set and monitored by the AKR. Finally, physiotherapists are expected to contribute to the monitoring and evaluation of the physiotherapy service that is most often expedited by maintaining accurate service data.

Almost all physiotherapists work in hospital or rehabilitation institutional settings in Rwanda. [6] Collegial interactions provide information that very few extend their work from the hospital into the community as an outreach service, loosely described as Community Based Rehabilitation (CBR), and that a few are involved in sports medicine. A substantial number of qualified physiotherapists are unable to secure employment. Although emerging evidence [10] suggests great need for physiotherapy services, the requisite number of posts for physiotherapists at health care institutions is unable to absorb the rate of output. [11]

Patient Registers.

The clinical record serves many functions in health care. The primary purpose of a clinical record is to provide information about a patient's presentation and any care given, both to serve as a reminder for the clinician providing the care and for communication with future

providers. [12] The patient register is a specialized clinical record. It contains medical data and information that serve to support the achievement of orderly administration in order to improve services in hospital. As a medical record the register also plays an important role in satisfying legal, financial (billing), research and educational purposes. [13]

In the physiotherapy departments, patient records are expected to contain the patients' physiotherapy management plan including personal data, the results of the initial examination and evaluation, diagnosis, prognosis, plan of care, response to treatment, changes in the patients status relative to the interventions, re-examination, and discharge/discontinuation of intervention and other patient management activities. [9] These are used to enable another physiotherapist to understand what interventions/treatments have been provided, the outcomes achieved and to continue the plan of care. The register may thus contain summarized aspects of the above that enable quick reference of patient details with regard to their identity, diagnosis, and physiotherapy attendance.

In health care, computerized/electronic health records and paper-based (traditional) methods continue to be used to record patient's clinical details. [14] Studies on the completeness of records in each format have yielded contrasting results, partly explained by the data collected. [14, 15] Several weaknesses of paper-based patient records have been identified, such as illegible handwriting, ambiguous and incomplete data, data fragmentation, and poor availability. [16, 17] In addition, paper records often become bulky with time, which leads to challenges with storage space. [17] Because paper records still represent the usual medium for collecting and recording patient data, these weaknesses could impede the continuity and quality of care as well as billing systems, clinical audit and review as well as research. [17] Even though implementation of electronic medical record systems promises significant advances in the quality of patient care, because such systems may enhance readability, availability, and data quality, *Adams et al. and M'kumbuzi et al.*, [17, 18] have highlighted that electronic records still require the clinician to have appropriate professional and attitudinal appreciation of the need to complete patient records as required.

Issues of both completeness and accuracy of records have been raised by several researchers, [12, 14, 19] and specifically with physiotherapy patient records

by M'kumbuzi et al. [17] Both traditional and electronic general practitioners' records have been found to be incomplete, and often clinicians collect much more data than they record. [14] Problems associated with, incomplete records include the inability of clinicians to review their performance, for example against best practice guidelines and the potential exposure to medical-legal risk. [20] According to Adams et al, [17] the completeness of physiotherapists' clinical records may be enhanced by electronic record system that uses a structured data entry format.

The purpose of this paper is to describe the completeness of the physiotherapy patient register. The paper is based on an analysis of a subset of data obtained from a larger survey that aimed to obtain baseline data on the nature and character of patients that present to physiotherapy services in Kigali, Rwanda.

Methods

The study was carried out in five hospitals in Kigali used for physiotherapy clinical teaching. These are described in terms of the conditions that pertained at the time of study (Table 1) below.

Table 1 Hospital study sites

Hospital	Beds \bar{n}	Physiotherapists \bar{n}	Description
1	509	10	Tertiary teaching hospital
2	140	9	Tertiary semi-autonomous
3	400	12	Military hospital
4	80	3	District hospital
5	20	4	Paediatric rehabilitation hospital

A retrospective record review and descriptive study design was employed. The five largest hospitals routinely used for physiotherapy clinical teaching in and around Kigali were purposefully selected in order to inform our planning for the clinical teaching of physiotherapy students. All registers in the five hospitals containing patient register entries from the year 2009 were included for study. All register entries were studied.

A checklist was developed to aid collection of register entries. This was developed through a modified Delphi approach with final year physiotherapy students on the contents of a patient register. The first round of the Delphi technique that was distributed to the students contained items obtained from the literature, regarding patient registers. The checklist was piloted at all

selected hospitals, and only those items that were contained in the registers at all five facilities were included in the final checklist. During the pilot study, the term 'diagnosis' was found to include various listings ranging from the conventional patient diagnosis to presenting problems or symptoms. The diagnosis was frequently referred to as the 'physiotherapy diagnosis'. However, as a study of the quality of the recording of the diagnosis was not an objective of the study, all listings under this item were termed 'physiotherapy diagnosis' for the purpose of this study and accepted as part of the physiotherapy register record. A pre-coded data entry form was developed from the checklist. The final items were: the unique identifier of the patient, age, gender, location of care provided, residential address and physiotherapy diagnosis.

Ethical clearance for the study was obtained from the Institutional Review Boards of KHI, Hospital 1, and Hospital 2 and from the Medical Directors of Hospital 3, Hospital 4 and Hospital 5 which at the time had not yet constituted an IRB.

Fourth (final) year physiotherapy students from KHI were trained as research assistants on how to use the data entry form, and to enter the data onto a Microsoft Excel spreadsheet. Research assistants were allocated to a facility as a group of 5 – 6 members.

At each facility they were required to determine the number of beds, the hospital and physiotherapy service utilisation from register tallies. They then used the pre-coded data entry form to enumerate the patients attending physiotherapy. Data was entered into a Microsoft Excel 2007. Each group was responsible for entering the data it collected. The principal investigator (VRPM) performed routine scheduled and random checks as an audit trail of the data collection and data entry processes for all groups. Descriptive statistics, frequencies of complete patient entries for the variables under study – in / out patient, gender, residence, diagnostic category and age were computed.

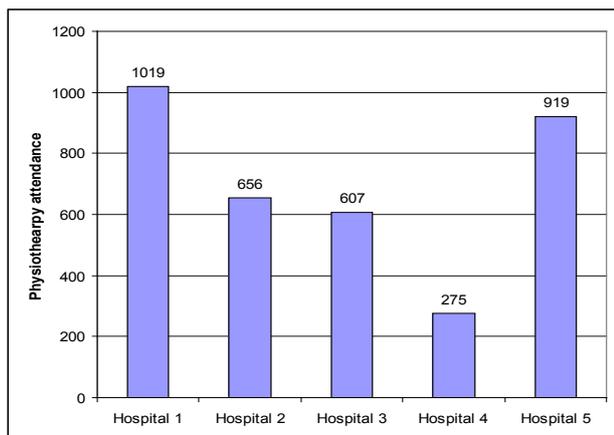
Results

Sample Characteristics

All hospitals used paper based patient registers. Hospital 2 did not record admitted patients on the register, subsequently these are excluded from the study. The 'official' register book for the year under study was not available from Hospital 5 throughout the study, but a register system containing all the items on the checklist was traced from the individual patient clinical record and was therefore included in the analysis. A total of

145128 patients were registered in the 5 hospitals in 2009. Of these 3476 attended and were registered as physiotherapy patients. Figure 1 below shows the distribution of patients attending physiotherapy according to the register entries at the studied hospitals.

Figure 1 Distribution of patients among the studied hospitals (N=3476)



Of the 3476 patient entries reviewed, 1902 were missing an entry, hence 2798, i.e. less than half (45%) of register entries had a complete set of data. Table 2 provides information on the missing data from the registers. Table 3 shows the missing data by hospital. Proportionally the hospital with the highest number of records with missing data was Hospital 4 at which 94% of the patients also lacked such data as gender.

Table 2 Records with missing data (N=1092)

Item	Records with missing data n (%)
In or outpatient	77 (2.2)
Age	165 (4.7)
Address	592 (17)
Gender	493 (14.2)
Physiotherapy Diagnosis	494 (14.2)

Table 3 Missing Records by hospital

	All Hospitals N = 3476	Hospital 1 N = 1019	Hospital 2 N = 656	Hospital 3 N = 607	Hospital 4 N = 275	Hospital 5 N = 919
Age	165	112	11	3	5	34
Gender	493	52	160	6	259	16
Location of care provided (<i>in or admitted patient</i>)	77	2	0	3	6	66
Residential Address	444	428	2	7	1	6
Diagnosis	262	115	0	102	2	43

Discussion

The purpose of this study was to explore and describe the completeness of the physiotherapy patient register. The results indicated that there is a high frequency of missing data including diagnosis in the registers. This situation is likely to limit the usefulness of physiotherapy register entries to meet the administrative, continuity and quality of care, medico-legal and ethical considerations, billing, research and educational requirements of the profession. Medical records are supposed be filled completely and correctly for all items defined as the components of the record. [21, 22] However, systems of medical records have been reported elsewhere as being inefficient. [23]

More so, data that do not speak to patients. [23] To mitigate both concerns, some facilities elsewhere have involved patients in completing register entries, but have also included some clinical outcome indicators so that as patients participate in the process they also assess their own progress. More recently, Estabrooks et al. [24] have supported the inclusion of patient reported data elements such as stress and exercise alongside the patient-centred factors i.e. demographics. Reports and graphs can be generated immediately if an electronic system is used. This has been done with outpatient diabetic care, using blood sugar levels and cholesterol levels and could be applied to appropriate outcome measures such as joint range of motion, pain intensity etc.

Although we did not analyze the underlying causes for our observations, a number of physiotherapists attributed non-completion to being 'too busy' as evidenced by the long outpatient queues. We suspect that these sentiments point to a paucity of medical record training compounded by therapists who may not fully realize the wider impact of this aspect of their work and may be important elements needing urgent redress. Myezwa and M'kumbuzi [25] have previously cited the latter with regard to observations made during the implementation of a quality assurance programme based on completion of documentation by rehabilitation staff, in the Midlands province of Zimbabwe. Similarly, Mann and Williams [26] categorically state that the onus for improving records lies with the individual health professionals.

A limitation of this study was the lack of a component that sought to determine the quality of the record specifically in terms of the degree of completion of each record and the ease of legibility of the register entries. The diagnosis posed the most frequent difficulty in this regard. Diagnoses were sometimes incomplete – either lacking lateralization or specifying the affected limb. For example, a supra-condylar fracture could be found on the humerus of the upper limb or the femur of the lower limb – this could often not be determined. At other times the diagnosis was written in French. However, the most frequent challenge across all the hospitals was the obvious lack of understanding of the term 'patient diagnosis'. Most entries under this variable were presenting problems and or symptoms such as 'pain' or 'stiffness'.

Thus while the literature is awash with the benefits of electronic health records, and while there is much pressure to computerize in an effort to ease the management of large patient case loads, [27] without an improvement in the quality of paper records the full benefits of computerization are unlikely to be realized. [26] Clinical audit is one way to monitor and ensure compliance with record keeping standards and practices. [25-28] By the end of 2011, Hospital 1 and hospital 2 had begun to engage with some aspects of clinical audit in part to satisfy accreditation requirements with a regional body. Data quality is judged based on completeness, accuracy and reliability. Subsequently, ensuring high data quality in paper-based medical records is fundamental to good clinical practice, programme management and ultimately to policy decision.

Conclusion

High frequencies of missing register entries were obtained, especially for gender and residential address. Yet, this data is useful for planning services, education, and research. An improved register system, patient entry and determination of diagnosis would go a long way to enhance the usefulness of this data. Training for physiotherapy staff to use routinely collected data for programme improvement would likely also enhance data quality.

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